

## ***Entyposis cordipenis* new species from Ethiopia (Coleoptera: Scarabaeidae: Melolonthinae: Schizonychini)**

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*Entyposis* Kolbe, 1895 (Coleoptera: Scarabaeidae: Melolonthinae: Schizonychini) was established for *Schizonycha cavicollis* Fairmaire, 1887 and newly described *Entyposis impressa* Kolbe, 1895. Lacroix & Montreuil (2012) revised the genus, designated *S. cavicollis* Fairmaire, 1887 as the type species and described six new species: *Entyposis bidentata*, *E. martinezi*, *E. rasplusi*, and *E. madogolelei* from Mozambique; *E. excavata* from Tanzania; and *E. squamulata* from Kenya and Tanzania. They also synonymized *E. nyukana* (Kolbe, 1910) and *E. montana* (Moser, 1913) with *E. mendax* Péringuey, 1904. *Entyposis* differs from other schizonychine genera in having a low occipital carina and with the pronotum in both sexes thickened basally into conspicuous bulges (with medial tubercle) and with deeper medial impression extending anteriorly into a weak or prominent point (Kolbe 1895; Lacroix & Montreuil 2012). *Entyposis* is very similar to *Entypophana* Moser, 1913. Both genera are characterized by conspicuous bulges (with lateral tubercle) on the pronotum, but *Entypophana* differs by having a double vertical frontal carina and occipital carina medially elevated into a simple or double horn or a broad, straight edge. The pronotum of both genera is laterally thickened into conspicuous bulges (with lateral tubercle) and medially bears a shallow, apically narrowing impression (Burgeon 1946; Moser 1913, 1917; Sehna 2017).

Recently, Vladimír Major (Brno, Czech Republic) kindly gave to me some very interesting specimens of *Entyposis* collected in Ethiopia. Examination of this material revealed an undescribed species. While identifying these specimens I checked descriptions of other northeast African species (Sudan, South Sudan, Djibouti, Somalia, Ethiopia, Uganda, and northern Kenya) and did not find any with a low occipital carina and with the pronotum in both sexes apically thickened into conspicuous bulges (with apical tubercle) and with deeper pronotal medial impression frontally extended into a weak or prominent point.

Specimens were examined with a Novex stereomicroscope and measurements were taken with an ocular grid. Length measurements are from the anterior margin of the clypeus to apices of the elytra. The habitus photographs were taken with a Canon MP-E 65mm/2.8 1–5x macro lens on bellows attached to a Canon EOS 550D camera. Partially focused images of each specimen were stacked using the Helicon Focus 3.20.2 Pro software. Specimens in the type series are provided with one red printed label: “*Entyposis cordipenis* sp. n., HOLOTYPE or PARATYPE [with type number], male or female, Richard Sehna det. 2017”. Exact label data are cited for type material examined. Text lines of each label are separated by a single vertical line [|]. Information in quotes indicates the original spelling. My remarks and additional comments are placed in brackets.

The following acronyms identify collections housing the material examined (curator's name is in parentheses):

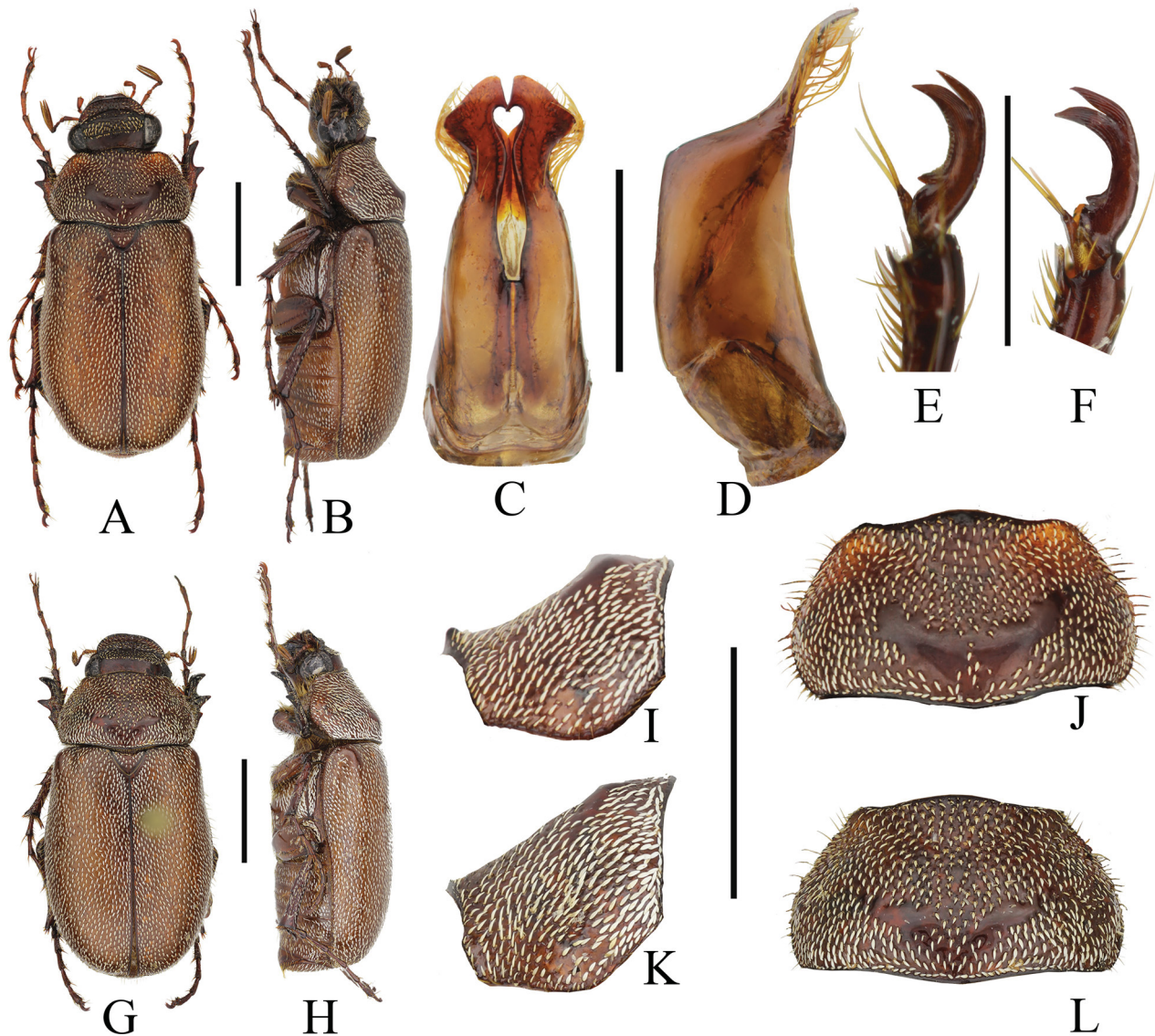
MCSN Museo Civico di Storia Naturale “Giacomo Doria”, Genova (Maria Tavano, Roberto Poggi).  
NMPC Národní muzeum Praha, Czech Republic (Jiří Hájek).  
RSCV Richard Sehna collection, Velenice, Czech Republic.

### ***Entyposis cordipenis* Sehna, new species (Figs. 1A–L, 2I)**

**Type locality.** Ethiopia, Southern Nations, Nationalities and Peoples' reg., Turmi.

**Type material.** Holotype (male) and paratypes Nos. 1–12 (9 males and 3 females): “ETHIOPIA – Hamer or. Turmi near 950 m. | 04°58'31"N 036°30'53"E | 27-30.11.2016 | Vladimír Major leg. [printed]”, paratype No. 13 (male): “Cumia - 14 [handwritten] [=SW Ethiopia, Southern Nations, Nationalities and Peoples' reg., near Machi] | Figherta - X [handwritten] | V. BOTTEGO [printed] 1895 [handwritten]”, paratype No. 14 (male): “M. Umberto I | III - IV -93 | Ruspoli [handwritten] [= SW Ethiopia, Oromia reg., near Arero]”. Type depository: holotype in NMPC, paratypes No. 1–12 in RSCV, paratypes No. 13–14 in MCSN.

**Description of holotype (male).** Body length 13.1 mm, elongate, almost parallel-sided, strongly convex. Dorsal and ventral surfaces dull; head dark brown; pronotum pale brown, with yellow apical corner; elytra pale brown with darker suture and humeral umbones with pale, scale-like macrosetation (Fig. 1A). Dorsal surface of head, pronotum, scutellum, and elytra covered only with white, wide, recumbent, scale-like macrosetae; ventral surface of thorax and abdomen covered with white, wide, recumbent, scale-like macrosetae and with sparse, shorter, recumbent reddish-yellow macrosetae. Mouthparts, antennae, and legs covered with reddish-yellow, moderately long macrosetae.



**FIGURE 1A–L.** *Entyposis cordipenis* Sehnal, new species, holotype male (A–E, I, J) and paratype female (F, G, H, K, L). A–B, habitus, dorsal and lateral views; C–D, aedeagus, dorsal and lateral views; E–F, inner protarsal claw; I–J, K–L, pronotum, dorsal and lateral views. Scale bar = 1 mm.

Head with labrum transverse, deeply bilobed; lobes rounded, irregularly and weakly punctate; lobes covered with long, erect macrosetae. Head including clypeus smooth, glossy, fissured, densely coarsely punctate; each puncture with a semierect macroseta 2x longer than puncture diameter. Frontoclypeal carina broadly arcuate; surface behind carina densely but unevenly punctate except a narrow impunctate strip adjacent to frontoclypeal suture. Frontoclypeal suture curved, medially arched toward occipital carina. Occipital carina always present, prominent. Space posterior of frontoclypeal suture with a large impunctate area. Occiput sparsely, evenly, moderately punctate. Canthus narrow, short, with sparse long macrosetae. Width of both eyes combined approximately equal to maximum width of frons between eyes, eye distinctly extending beyond canthus. Antenna with 10 antennomeres; club with three antennomeres, almost

straight, shorter than antennal shaft (antennomeres 1–7 combined). Antennomeres 1–7 with sparse, long macrosetae; club with sparse, short macrosetae. Terminal maxillary palpomere expanded apically, 1/3 shorter than palpomeres 2 and 3 combined.

Pronotum transverse, widest behind middle; with a shallow, oval anteromedial depression narrower than head that weakly rises toward edge of crest. Anterior margin turned forward, medially elevated, extended into a columnal impunctate summit, laterally diminishing (Fig. 1A–B, I–J), with angles extended forward. Lateral margins crenulate and macrosetose. Posterior margin bordered, shallowly arched medially, with smooth margin paralleled by a row of coarse punctures and hind angles broadly rounded. Crest delimiting anteromedial depression prominent, with a wide V-shaped strip, at summit of crest impunctate. Depression densely covered by shallow, asperate punctures with setae 2x longer than puncture diameters. Punctuation of remaining surface also shallow and irregular; setae yellow, scale-like, somewhat recumbent.

Scutellum large, broadly triangular, sides and apex rounded; with circular punctures; each puncture bearing a short, narrow, white, scale-like, semirecumbent macroseta.

Elytra weakly convex, parallel-sided, rounded apically; apical angle approximately rectangular. Striae absent except for a feeble sutural stria. Humeral umbones present, weakly swollen, impunctate, without scale-like macrosetae. Surface not microsculptured, moderately shiny; punctures shallow, regularly spaced, separated by 2 puncture diameters. Each puncture bearing a narrow, scale-like, semirecumbent yellow macroseta 3x longer than puncture diameter. Epipleuron distinct, complete, narrow, glabrous laterally. Macropterous.

Legs with femora narrow, shiny, irregularly punctate, macrosetaceous. Protibia narrow, distinctly tridentate; terminal tooth inserted above medial spine. Mesotibia and metatibia slightly expanded distally, each with one incomplete longitudinal macrosetiferous carina. Upper terminal spur of metatibia flattened, slightly curved, acute apically 1/3 longer than lower, apically truncate, chisel-shaped spur. Claws bifid, with ventrobasal teeth and entire ventral edge of lower claw finely serrate (Figs. 1E).

Ventral surface covered by long, semierect, white macrosetae. Pygidium slightly transverse, convex, completely bordered, apically broadly rounded, irregularly covered by coarse, umbilicate, macrosetiferous, scale-like punctures.

Male genitalia (Figs. 1C–D). Parameres symmetrical, longer than phallobase, regularly curved with a double hump apically in lateral aspect and a double apex in dorsal aspect; each paramere medially with apex rotated toward base, together forming a heart shape; covered by short, fine, semierect, yellow macrosetae.

**Variability in males.** Paratypes somewhat variable in body length (11.5–13.8 mm,  $n = 11$ ), slightly variable in dorsal punctation density and length and distribution of macrosetae.

**Sexual dimorphism.** Females differ from male in the following characters: body length 11.8–13.8 mm (Fig. 1G–H), metatibia more strongly expanded distally; tarsomeres of all legs shorter.

**Geographic distribution.** Ethiopia, Southern Nations, Nationalities and Peoples' region: Turmi, Machi, and Oromia region: Arero.

**Differential diagnosis.** *Entyposis cordipenis* Sehnal, new species is distinguished from all species of the genus using the following diagnostic characters in males: entire dorsal surface bearing only scale-like setae; pronotal crest delimiting anteromedial depression prominent, with a wide V-shaped strip, summit of crest impunctate (Fig. 2A–B); front margin turned forward, medially elevated, extended into a columnal impunctate summit, laterally diminishing, with yellow angles extended forward (Fig. 1I–J) and male genitalia with each paramere apex rotated medially toward base, together forming a heart shape (Fig. 1C–D).

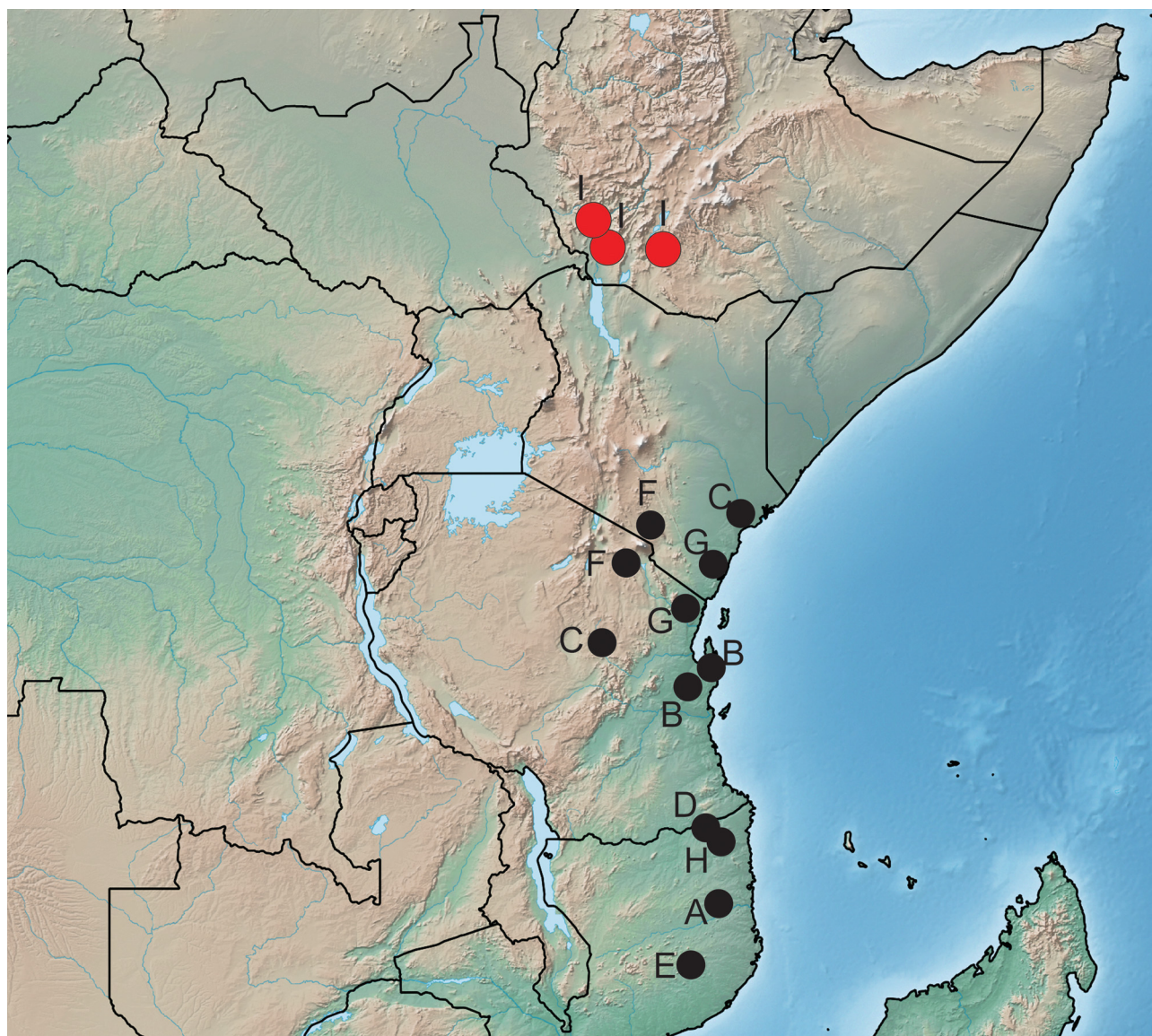
**Etymology.** Derived from medial rotation of paramere apices, which together form a heart shape. This name should be treated as an adjective in the nominative singular.

## Key to species of *Entyposis*, males only (modified from Lacroix & Montreuil 2012)

1. Pronotum slightly excavated; tubercle barely indicated ..... 2
- Pronotum distinctly excavated; tubercle of pronotum visible, more-or-less prominent ..... 4
2. Dorsal surface with scale-like setae, size 11.5–13.8 mm ..... *E. cordipenis* Sehnal, new species
- Dorsal surface with short or long setae ..... 3
3. Elytra with short setae, small size 10.5–12.0 mm ..... *E. mendax* Péringuey, 1904
- Elytra with long setae, largest size 14–16 mm ..... *E. impressa* Kolbe, 1895
4. Protibia bidentate ..... 5
- Protibia tridentate ..... 6
5. Elytra without macrosetae. Paramere apices curved outward into hooks. Terminal maxillary palpomere elongate. Antennal club no longer than antennal shaft ..... *E. cavicolis* (Fairmaire, 1887)
- Elytra with visible macrosetae. Paramere apices curved inward into hooks. Terminal maxillary palpomere wide and flat at apex.



- Antennal club longer than antennal shaft ..... *E. bidentata* Lacroix & Montreuil, 2012
6. Pronotum tuberculate and bilobed at apex ..... *E. martinezi* Lacroix & Montreuil, 2012
- Pronotal tuberculation only indicated ..... 7
7. Elytra with dense and strong squamation. Punctuation of 8th tergite with dense, fine, short setae..... *E. squamulata* Lacroix & Montreuil, 2012
- Elytral squamation sparse, fine, less visible. Punctuation of 8th tergite with scattered, long, erect or semierect setae ..... 8
8. Elytral setae thin, visible. Antennal club not longer than funicle. Parameres hooked at apex ..... *E. madogolelei* Lacroix & Montreuil, 2012
- Elytral setae much less visible. Antennal club longer than funicle. Paramere apices flattened and rounded ..... 9
9. Terminal maxillary palpomere enlarged at apex. Dorsal surface yellowish brown, body brownish yellow..... *E. rasplusi* Lacroix & Montreuil, 2012
- Terminal maxillary palpomere rounded at apex. All dorsal surface and body chestnut brown ..... *E. excavata* Lacroix & Montreuil, 2012



**FIGURE 2.** Map with currently known geographic distribution of *Entyposis* species. A, *Entyposis cavicollis* (Fairmaire, 1887); B, *Entyposis bidentata* Lacroix & Montreuil, 2012; C, *Entyposis martinezi* Lacroix & Montreuil, 2012; D, *Entyposis rasplusi* Lacroix & Montreuil, 2012; E, *Entyposis madogolelei* Lacroix & Montreuil, 2012; F, *Entyposis excavata* Lacroix & Montreuil, 2012; G, *Entyposis squamulata* Lacroix & Montreuil, 2012; H, *Entyposis mendax* Péringuey, 1904; I, *Entyposis cordipenis* Sehnal, new species.

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